

Claims

1. Video hologram and device for reconstructing video holograms, comprising an optical system that consists of at least one real or virtual point light source or line light source which provides sufficiently coherent light, a lens and a hologram-bearing medium, composed of cells arranged in a matrix or in an otherwise regular pattern with at least one opening per cell, the phase or amplitude of said opening being controllable, and a viewing plane located at the image plane of the light source, **characterised in that** in the viewing plane at least one viewing window (5) is located in a periodicity interval of the reconstruction by the Fourier transform of the video hologram (3), through which the reconstruction of a three-dimensional scene (6) is visible, and the extension of the viewing window (5) is not greater than the periodicity interval.
2. Video hologram and device according to claim 1, characterised in that the viewing window (5) is approximately limited and positioned in relation to one eye, an eye distance of a viewer or to another suitable area.
3. Video hologram and device according to claim 1, characterised in that the other eye of the viewer is assigned a second viewing window (5') achieved by a second, real or virtual, sufficiently coherent light source (1') being turned on at another suitable position to form a pair of light sources in the optical system.
4. Video hologram and device according to claim 3, characterised in that the optical system and the hologram-bearing medium (3) are arranged so that the higher diffraction orders of the video hologram (3) for the first viewing window (5) have a zero point or an intensity minimum at the position of the second viewing window (5').
5. Video hologram and device according to claim 4, characterised in that the hologram-bearing medium (3) can be re-encoded for the second eye synchronously to turning on the second viewing window (5').
6. Video hologram and device according to claims 3 to 5, characterised in that several light sources can be turned on for several viewers.

7. Video hologram and device according to one of claims 1 to 6, characterised in that the light sources can be positioned by mechanical or electronic displacement, by movable mirrors or in another suitable way.

5 8. Video hologram and device according to one of claims 1 to 7, characterised in that information required to determine the position of the light sources is provided by at least one position sensor according to the position of the viewer(s).

10 9. Video hologram and device according to claim 1, characterised in that a video hologram is reconstructed in colour, wherein the hologram-bearing medium (3) being composed of cells arranged in a matrix or in an otherwise regular pattern with at least three openings per cell, representing the three primary colours, the phase and/or amplitude of said openings being controllable, and said openings being encoded individually for each primary colour.

15 10. Video hologram and device according to claim 1, characterised in that the colour reconstruction is achieved by at least three subsequently performed reconstructions in the individual primary colours.